National Institute of Environmental Health Sciences

Extensive drought negates human influence on nutrients and water quality in estuaries

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Abstract:

Impacts of land-use on estuarine environmental parameters and nutrients are well documented, but little is known about these characteristics during extensive periods of low water flow (i.e., drought). Droughts are set to increase in frequency and magnitude with climate change, and understanding their influence on ecosystems is imperative. We investigated differences in environmental parameters and nutrients in urban and rural estuaries during a period of prolonged low flow. Sampling was done along each estuary at multiple times to place small-scale variability in the context of land-use differences. No differences were detected between land-use for environmental parameters or nutrients in mean effects or variance structure. Urban estuaries had reduced variation in nutrients over time compared to rural estuaries, which suggested that their concentrations are more stable. Large differences existed within and between individual estuaries, and over time. Low freshwater flow conditions in estuaries provide a glimpse to future climate change impacts of drought, and a baseline upon which pollution and anthropogenic effects can be assessed.

Source: http://dx.doi.org/10.1016/j.scitotenv.2009.01.012

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Temperature

Extreme Weather Event: Drought

Food/Water Quality: Biotoxin/Algal Bloom, Other Water Quality Issue

Water Quality (other): Salinity;pH;Dissolved oxygen;Oxidised Nitrogen;Orthophosphate;Ammonia;Chlorophyll a

Geographic Feature:

resource focuses on specific type of geography

Freshwater, Ocean/Coastal, Rural, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content